What Is Claimed Is:

1. A method of routing a plurality of demands in a network that comprises nodes interconnected by links, each demand having two end nodes, the method comprising:

a) logically subdividing the network into a plurality of rings, wherein each ring is formed by two link-disjoint paths between a pair of nodes;

b) to each of the demands, assigning a ring that contains both of the pertinent end nodes; and

c) to each of the demands, assigning two mutually link-disjoint paths on the ring from one end node to the other, wherein one said path is a working path and the other said path is a protection path.

2. The method of claim 1, wherein each of the protection paths is node-disjoint from its corresponding working path.

3. The method of claim 1, further comprising, for at least one pair of end nodes, subdividing a total demand between said end nodes into a plurality of unit demands, and wherein the assigning of working paths and protection paths is performed on the unit demands.

4. The method of claim 3, wherein the network is an optical network, each link of the network comprises one or more optical fibers, and one unit of demand is equivalent to the bandwidth capacity of one wavelength channel on an optical fiber.

5. The method of claim 1, wherein each working path and each protection path is confined to a single ring.

6. The method of claim 1, wherein the network is an optical network, and the method further comprises assigning at least one wavelength channel to each working path and to each protection path, resulting in a working wavelength channel on the working path and a protection wavelength channel on the protection path.

7. The method of claim 6, wherein the assignment of wavelength channels is carried out such that no two demands have the same working wavelength channel or protection wavelength channel.

8. The method of claim 6, wherein the path and wavelength-channel assignments are carried out so as to drive down a cost function determined at least in part by the occupancy of wavelength channels on links of the network.

9. The method of claim 8, wherein the cost function is further determined by the occupancy of ports or optical termination units at nodes of the network.

10. The method of claim 8, wherein:

the links of the network comprise optical fibers,

the cost function includes, for each link, a cost component for placing a further wavelength channel on such link; and

said cost component is selected to decrease as the number of already-placed wavelength channels increases, but to jump to a highest value when the number of already-placed wavelength channels reaches the full capacity of one optical fiber.

11. The method of claim 10, wherein the cost function further includes a cost component for placing wavelength ports at end nodes of the link, and the cost component is selected to decrease as the number of already-placed wavelength ports increases, but to jump to a highest value when the number of already-placed wavelength ports reaches the full capacity of one optical cross-connect.

12. The method of claim 8, wherein the path and wavelength-channel assignments are carried out such that the assignments to the respective demands jointly drive down the cost function.

13. The method of claim 1, wherein the network is an optical network, each link of the network comprises one or more optical fibers, and the method further comprises

assigning at least one wavelength channel to each working path and to each protection path.

14. The method of claim 1, wherein the network is an optical network, each link of the network comprises one or more optical fibers, and rings having a common link are permitted to share optical fibers on such common link.

15. The network of claim 1, wherein:

the network is an optical network; each link of the network comprises one or more optical fibers;

the method further comprises assigning at least one wavelength channel to each working path and to each protection path; and

the assignment of wavelength channels is carried out such that on a given ring, the protection paths of two or more demands are permitted to share the same wavelength channel if the respective working paths of said demands have no common link on the given ring.

16. The method of claim 15, wherein:

two or more rings having a common link are permitted to share optical fibers on such a common link; and

each wavelength channel on such a shared optical fiber belongs exclusively to only one of the sharing rings.

17. The method of claim 16, wherein each optical fiber on a given link of a ring is allocated exclusively to one ring.

18. The method of claim 15, wherein:

at least one of the demands routed in the network is a compound demand having a source node and a destination node and comprising two or more constituent demands each of which begins or ends on a node intermediate the source and destination nodes;

the assignment of rings to demands comprises assigning a ring to each of the constituent demands; and

a working path or protection path for the compound demand is permitted to pass through links occupied by distinct rings.

19. The method of claim 18, wherein the subdividing of the network into rings comprises selecting a working path for each demand, and then defining a set of rings such that every link of the network that is occupied by a working path is also occupied by at least one ring.

20. The method of claim 19, further comprising designating to each link of the network sufficient optical working fibers to carry the demands routed on working paths through said link, and designating to each ring a sufficient number of optical protection fibers so that the number of protection fibers occupying each link is at least the number of working fibers occupying said link.

21. A method, comprising:

detecting a failure at a node or link of a network resulting in the interruption of a routed working path for at least one demand;

selecting a protection path for the interrupted demand; and

re-routing the interrupted demand along the protection path; wherein:

a) the network is logically subdivided into a plurality of rings, each ring formed by two link-disjoint paths between a pair of nodes;

b) to each of a plurality of demands, each said demand having a pair of end nodes, there is assigned a ring that contains both of the pertinent end nodes; and

c) the selection of a protection path for the interrupted demand comprises selecting a path that belongs to the same ring as the interrupted working path and is link-disjoint therefrom.

22. The method of claim 21, wherein the network is an optical network.

23. The method of claim 21, wherein the selected protection path is node-disjoint from the interrupted working path.

24. The method of claim 21, wherein:

at least one of the demands routed in the network is a compound demand having a source node and a destination node and comprising two or more constituent demands each of which begins or ends on a node intermediate the source and destination nodes;

for each said compound demand, a ring is assigned to each of the pertinent constituent demands;

the interrupted demand is a compound demand; and

the selected protection path belongs to the ring assigned to the constituent demand where the failure occurred.